ABSTRACT

A multithreaded architecture is disclosed for buffering unchecked stores for fault detection in redundant multithreading systems using speculative memory support. In particular, the performance of a SRT processor is enhanced by using speculative memory support to buffer the leading threads stores until they can be compared with their trailing thread counterparts. Buffering these stores in the memory system allows them to be removed from the store buffer. Since the speculative memory system will have greater capacity than the store buffer, additional stores may be buffered before the leading thread will be forced to stall. This will result in an increase in slack between threads, and thus an increase in performance.